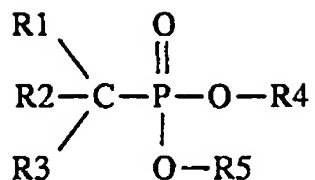


CLAIMS

What is claimed is:

1. A process for dissolving acid-soluble siliceous material in a sandstone formation of an oil or gas well which comprises:
 - (a) introducing into the well a buffered acid solution containing an organic acid, the buffered acid solution being void of hydrofluoric acid or a hydrofluoric acid precursor; and
 - (b) introducing into the well an HF-containing sandstone acidizing solution wherein the pH of the buffered acid solution has pH substantially equivalent to that of the acidizing solution.
2. The process of Claim 1, wherein the pH of the buffered acid solution is between from about 1.9 to about 4.8.
3. The method of Claim 1, wherein the buffered acid solution contains less than about 3 weight percent of HCl.
4. The method of Claim 1, wherein the buffered acid solution does not contain an inorganic acid.
5. The method of Claim 1, wherein the sandstone acidizing solution further comprises a phosphonate of the formula:



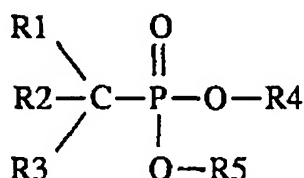
wherein R1, R2 and R3 are independently selected from hydrogen, alkyl, aryl, phosphonates, phosphates, acyl, amine, hydroxy and carboxyl groups and R4 and R4 are independently selected from hydrogen, sodium, potassium, ammonium or an organic radical.

6. The method of Claim 1, wherein the buffered acid solution consists essentially of (i.) an organic acid and (ii.) an organic acid salt.
7. The method of Claim 6, wherein the organic acid of the organic acid salt is the same or different from the organic acid of (i.).
8. The method of Claim 1, wherein the buffered acid solution comprises an organic acid and a salt of an organic acid.
9. The method of Claim 8, wherein the organic acid and the organic acid of the organic salt are independently selected from acetic acid, formic acid, citric acid, lactic acid, fumaric acid, propionic acid, butyric acid, chloroacetic acid, edetatic acid, pentateic acid or a mixture thereof.
10. The method of Claim 1, wherein the buffered acid solution comprises an organic acid selected from acetic acid, formic acid, citric acid or a mixture thereof and a salt of acetic acid, formic acid, citric acid or a mixture thereof.

11. The method of Claim 10, wherein the organic acid salt is a sodium, potassium, or ammonium salt of acetic acid, formic acid, citric acid or a mixture thereof.
12. The method of Claim 2, wherein the pH of the buffered acid solution is from about 3.2 to about 4.5.
- 5 13. The method of Claim 5, wherein the sandstone acidizing solution further comprises citric acid or formic acid.
14. The method of Claim 13, wherein the sandstone acidizing solution further comprises an ammonium salt.
- 10 15. The method of Claim 1, wherein the sandstone acidizing solution comprises about 1 to about 50 weight percent citric acid, up to about 20 weight percent HF and from about 0.5 to about 50 weight percent phosphonate compound.
- 15 16. A process for dissolving acid soluble siliceous material in a well which comprises:
- (a) introducing into the well a HF containing acidizing solution having a pH of between from about 1.9 to about 4.5; and
- (b) prior to and/or subsequent to step (a) introducing into the well a buffered
- 20 acid solution, void of hydrofluoric acid, having a pH of from about 1.9 to about 4.5.
17. The method of Claim 16, wherein the pH of the acidizing solution and the pH of the buffered acid solution are substantially equivalent.
- 25 18. The method of Claim 16, wherein the buffered acid solution comprises an organic acid and a salt of an organic acid and further wherein the organic acid and the organic

acid of the organic salt are independently selected from acetic acid, formic acid, citric acid, lactic acid, fumaric acid, propionic acid, butyric acid, chloroacetic acid, edetatic acid, pentateic acid or a mixture thereof.

- 5 19. The method of Claim 18, wherein the acidizing solution further comprises a phosphonate of the formula:



10 wherein R1, R2 and R3 are independently selected from hydrogen, alkyl, aryl, phosphonates, phosphates, acyl, amine, hydroxy and carboxyl groups and R4 and R4 are independently selected from hydrogen, sodium, potassium, ammonium or an organic radical.

20. A process for removing carbonate materials or scale deposition from a
15 subterranean formation of an oil or gas well which comprises introducing into the well a buffered acid solution containing an organic acid and void of hydrofluoric acid or a hydrofluoric acid precursor wherein the pH of the buffered acid solution is generally between from about 1.9 to about 4.8.

- 20 21. The process of Claim 20, wherein the subterranean formation is a sandstone.

22. The process of Claim 20, wherein the subterranean formation is a carbonate.

23. The process of Claim 20, wherein the pH of the buffered acid solution is between from about 3.2 to about 4.8.
24. The method of Claim 20, wherein the buffered acid solution contains less than
5 about 3 weight percent of HCl.
25. The method of Claim 20, wherein the buffered acid solution does not contain an inorganic acid.
- 10 26. The method of Claim 20, wherein the buffered acid solution comprises an organic acid and a salt of an organic acid.
27. The method of Claim 26, wherein the organic acid and the organic acid of the organic salt are independently selected from acetic acid, formic acid, citric acid, lactic
15 acid, fumaric acid, propionic acid, butyric acid, chloroacetic acid, edetatic acid, pentateic acid or a mixture thereof.
28. The method of Claim 20, wherein the buffered acid solution comprises an organic acid selected from acetic acid, formic acid, citric acid or a mixture thereof and a
20 salt of acetic acid, formic acid, citric acid or a mixture thereof.

29. The method of Claim 28, wherein the organic acid salt is a sodium, potassium, or ammonium salt of acetic acid, formic acid, citric acid or a mixture thereof.